

*Catalogue of Real Paths of Large Meteors.*  
By Professor Gustav von Niessl.

(Communicated by W. F. Denning.)

The following real paths of large meteors have been computed by me in recent years.

The descriptions of the objects were partly collected by myself, partly taken from various scientific papers and journals, viz. from Heis's *Wochenschrift für Astronomie*, *Reports of Vienna Academy*, the *Comptes Rendus* of the French Academy, the *American Journal of Science*, and others.

The succession of the several phenomena contained in this list is arranged according to the month and day (beginning with the commencement of the year), without regard to the particular years in which they were observed, as in my opinion this method of tabulation will allow a ready and convenient means of reference.

I have not availed myself of the very numerous and valuable notices and researches in the reports of the Luminous Meteor Committee of the British Association for the Advancement of Science (1848 to 1880), as one may hope that a summary of them will be prepared by Professor Herschel.

It is also to be hoped that a general catalogue of the real paths of fireballs will soon be compiled, and that this will include the results of other workers in this field; for example, Galle, Weiss, Newton, Koerber, &c.

*Brünn, Austria :*  
1896 November 12.

Jan. 1897.

Real Paths of Large Meteors.

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List of Paths of Large Meteors &c., Computed by Professor G. von Niessl.

(Communicated by W. F. Denning.)

Ref. No.	Date of Appearance.	Time, G.M.T. and (Local Time).	Locality.	Apparent Size or Magnitude.	Height. When First Seen.	Real Length of Observ. Path, English Miles.	Velocity to the Earth (Geo. centric).	Radiant Point.	Number of Observations Used.	Remarks, References, &c.
		<sup>h</sup> <sup>m</sup>						$\alpha$ $\delta$		
1	Jan. 12 (1879)	6 26 (7 23)	Austria	= 0 *	41	10 124	17	133 $^{\circ}$ +19 $^{\circ}$	6	*Thus: like Moon. Detonating.
2	12 (1879)	6 33 (7 30)	Austria	Large fireball	87	18 124	13	52 -10	6	Detonating.
3	16 (1895)	10 49 (11 49)	Austria	$\frac{1}{2}$ 0	118	31 124	49	196 +56	5	Velocity not accurate.
4	16 (1895)	10 50 (11 50)	Austria	0	35	31 166	47	172.5 -23.0	24	Detonating.
5	16 (1895)	10 52 (11 54)	Austria, Germany	0	96	21 177	19	341.1 +56.4	26	Detonating.
6	17 (1890)	3 42 (4 40)	Austria	Brilliant	88	51 265	...	109 +23.5	2	
7	17 (1890)	4 6 (5 9)	Austria-Hungary	$\frac{1}{2}$ 0 - 0	97	25 353	34	113.6 +21.7	24	Detonating.
8	23 (1876)	4 44 (5 49)	Austria-Hungary	$\frac{1}{3}$ 0	64	16 128	16	17 -20	5	
9	25 (1895)	6 51 (7 53)	Austria	About = 0	97	31 83	23	104 +30	27	Detonating.

Ref. No.	Date of Appearance.	Time, G.M.T. and (Local Time).	Locality.	Apparent Size or Magnitude.	Height, When First Seen.	Real Length of Observed Path, centric). English Miles.	Velocity to the Earth (Geo- centric).	Radiant Point.	Number of Observations Used.	Remarks, References, &c.
		$\begin{smallmatrix} h & m \\ \text{---} & \text{---} \end{smallmatrix}$						$\begin{smallmatrix} \alpha & \delta \\ \text{---} & \text{---} \end{smallmatrix}$		
10	28 (1870)	$\begin{smallmatrix} 5 & 31 \\ (5 & 58) \end{smallmatrix}$	Germany	$3 \times \varphi$	51 31	64 ...	...	$\begin{smallmatrix} 195 & -20 \\ 0 & \end{smallmatrix}$	2	See accounts in Heis's <i>Wochenschrift für Astronomie</i> , 1870.
11	Feb. 3 (1856)	$\begin{smallmatrix} 7 & 55 \\ (8 & 20) \end{smallmatrix}$	Switzerland, France	Very large	138 48	248 62	62	120 - 7	3	See Heis's investigations in <i>Jahr, Unterhaltungen</i> , T. x.
12	3 (1882)	$\begin{smallmatrix} 2 & 7 \\ (3 & 45) \end{smallmatrix}$	Hungary	Very large	115 5	297 ...	...	264 + 40	4	The Mocs Meteorites. Detonating.
13	10 (1875)	$\begin{smallmatrix} 5 & 51 \\ (6 & 0) \end{smallmatrix}$	France	Of a singular magnitude	119 ...	... ...	...	53 + 50	4	Only radiant well determinable. <i>Comptes Rendus</i> , T. lxxx.
14	12 (1875)	$\begin{smallmatrix} 15 & 45 \\ (10 & 30) \end{smallmatrix}$	United States	More than 4	37 25	115 11	11	104 - 30	9	The Marengo (Amana) Meteorites. See Leonard's account in <i>Americ. Journ. of Science and Arts</i> , Ser. 3, Vol. x. Detonating.
15	15 (1865)	$\begin{smallmatrix} 5 & 29 \\ (6 & 0) \end{smallmatrix}$	Germany	4	115 28	193 24	24	279 + 60	4	See accounts in Heis's <i>Wochenschrift</i> , 1865.
16	20 (1870)	$\begin{smallmatrix} 9 & 33 \\ (10 & 5) \end{smallmatrix}$	Italy	Bright meteor	46 23	69 23	23	273 + 62	2	See accounts in Heis's <i>Wochenschrift</i> , 1870.
17	24 (1871)	$\begin{smallmatrix} 9 & 9 \\ (10 & 14) \end{smallmatrix}$	Austria	♀	90 33	87 44	44	210 + 55	2 (by Meteoroscopes)	
18	Mar. 4 (1872)	$\begin{smallmatrix} 9 & 29 \\ (10 & 1) \end{smallmatrix}$	Italy	4	62 36	37 37	37	115 + 83	3	

Ref. No.	Date of Appearance.	Time, G.M.T. and (Local Time).	Locality.	Apparent Size or Magnitude.	Height. When First Seen.	Real Length of Observed Path. English Miles.	Velocity to the Earth (Geocentric).	Radiant Point.	Number of Observations Used.	Remarks, References, &c.
		$\begin{smallmatrix} h & m \\ 15 & 0 \\ (10 & 0) \end{smallmatrix}$					$\begin{smallmatrix} \alpha & \delta \\ 257 & +40 \end{smallmatrix}$			
19	9 (1822)		United States	☉	41	29	76	40	Many	See Dean's accounts in <i>Gilbert's Annalen</i> , T. lxxv., and <i>Poggendorf</i> , T. ii. Detonating.
20	13 (1833)	$\begin{smallmatrix} 6 & 22 \\ (7 & 21) \end{smallmatrix}$	Austria	Large fireball	102	24	117	39	8	
21	17 (1871)	$\begin{smallmatrix} 10 & 40 \\ (10 & 49) \end{smallmatrix}$	France	Large	115	...	more than 550	345 + 50	8	See accounts in <i>Comptes Rendus</i> , T. lxxii.
22	21 (1877)	$\begin{smallmatrix} 5 & 59 \\ (7 & 4) \end{smallmatrix}$	Austria, Italy	> ♀	184	18	600	15	4	Scarcely accurate.
23	25 (1873)	$\begin{smallmatrix} 7 & 30 \\ (8 & 20) \end{smallmatrix}$	Denmark	$\frac{1}{2}$ ☾	80	23	60	24	4	See accounts in Heis's <i>Wochenschrift</i> , T. 1873.
24	Apr. 2 (1852)	$\begin{smallmatrix} 6 & 25 \\ (6 & 30) \end{smallmatrix}$	Franco	Splendid meteor	10	9	83	12	2	See Petit's investigations in <i>Comptes Rendus</i> , T. xxxv. Detonating.
25	2 (1891)	$\begin{smallmatrix} 7 & 50 \\ (8 & 57) \end{smallmatrix}$	Austria	$\frac{1}{2}$ ☾ - ☾	109	17	180	24	28	
26	9 (1876)	$\begin{smallmatrix} 7 & 15 \\ (8 & 38) \end{smallmatrix}$	Austria-Hungary	☾	101	20	197	26	7	Detonating.
27	10 (1874)	$\begin{smallmatrix} 7 & 4 \\ (8 & 4) \end{smallmatrix}$	Austria	2 × ☉	48	18	56	14	6	Detonating.
28	11 (1869)	$\begin{smallmatrix} 10 & 3 \\ (10 & 35) \end{smallmatrix}$	Italy	Bright meteor	96	57	40	...	2	

Ref. No.	Date of Appearance.	Time, G.M.T. and (Local Time).	Locality.	Apparent Size or Magnitude.	Height. When First Seen. English	Real Length of Path. Miles.	Velocity to the Earth (Geo-centric).	Radiant Point.	Number of Observations Used.	Remarks, References, &c.
		$\begin{smallmatrix} h & m \\ \hline \end{smallmatrix}$					$\begin{smallmatrix} \alpha & \delta \\ \hline \end{smallmatrix}$			
29	11 (1871)	$\begin{smallmatrix} 9 & 14 \\ (9 & 46) \end{smallmatrix}$	Italy	Bright meteor	... 25	...	... 216 -10°		3	
30	21 (1887)	$\begin{smallmatrix} 8 & 0 \\ (8 & 58) \end{smallmatrix}$	Austria	☾	82 23	223	25	214 -13	15	Detonating.
31	22 (1871)	$\begin{smallmatrix} 10 & 5 \\ (10 & 37) \end{smallmatrix}$	Italy	Bright meteor	... 43	...	... 231 - 7		2	Radiant, not accurate, but probably not identical with the former of Apr. 21.
32	22 (1888)	$\begin{smallmatrix} 6 & 52 \\ (7 & 55) \end{smallmatrix}$	Austria	$\frac{3}{4}$ ☾	116 23	185	20	100°7 + 10°1	4†	
33	29 (1877)	$\begin{smallmatrix} 8 & 37 \\ (10 & 17) \end{smallmatrix}$	Sweden	☾	42 19	73	21	146°5 ± 0	4	See Sundell's account in <i>Finska Vetenskaps Societ. Förhandl.</i> T. xxvii.
34	May 5 (1869)	$\begin{smallmatrix} 6 & 2 \\ (6 & 32) \end{smallmatrix}$	Germany	Large	30 5	48	24	190 + 8	3	The meteorite of Krähenberg. See <i>Neumayer in Vienna Acad.</i> T. lx. Detonating.
35	14 (1864)	$\begin{smallmatrix} 8 & 0 \\ (8 & 0) \end{smallmatrix}$	France	☾	174 14	418	19	86°5 + 24°0	11	The meteorites of Orgueil.
36	20 (1869)	$\begin{smallmatrix} 16 & 17 \\ (11 & 25) \end{smallmatrix}$	United States	Very large	53 28	45	...	240 -18	3	See Loomis's accounts in <i>Amer. Jour.</i> Ser. II. Vol. xlviii. Detonating.
37	26 (1751)	$\begin{smallmatrix} 4 & 56 \\ (6 & 0) \end{smallmatrix}$	Austria-Hungary	☾	118 28	280	...	60 + 20°5	2	Ironfall at Hradschin. Detonating.
38	28 (1880)	$\begin{smallmatrix} 7 & 26 \\ (8 & 39) \end{smallmatrix}$	Austria-Hungary	$\frac{1}{4}$ ☾	51 27	74	12	100 + 35	2	

Ref. No.	Date of Appearance.	Time, G.M.T. and (Local Time).	Locality.	Apparent Size or Magnitude.	Height. When First Seen.	Real Length of Observed Path. English Miles.	Velocity to the Earth (Geo-centric).	Radiant Point. $\alpha$ $\delta$	Number of Observations Used.	Remarks, References, &c.
39	June 2 (1886)	$\begin{smallmatrix} h & m \\ 9 & 59 \\ (11 & 0) \end{smallmatrix}$	Austria	$> 7$	...	25	...	$250^{\circ} - 20^{\circ}$	4	Not accurate.
40	3 (1842)	$\begin{smallmatrix} 8 & 51 \\ (9 & 0) \end{smallmatrix}$	France	$\odot$	130	11	165	$30^{\circ} 272^{\circ} + 46^{\circ} 5$	5	See Petit's accounts in <i>Comptes Rendus</i> , T. xiv. and xvi. Detonating.
41	3 (1883)	$\begin{smallmatrix} 8 & 44 \\ (9 & 50) \end{smallmatrix}$	Austria	Splendid meteor	124	21	332	$22^{\circ} 249^{\circ} 9' - 20^{\circ} 2$	11	
42	3 (1883)	$\begin{smallmatrix} 10 & 39 \\ (10 & 57) \end{smallmatrix}$	North Sea	$\zeta$	188	23	454	$23^{\circ} 248^{\circ} - 20^{\circ}$	6	
43	7 (1858)	$\begin{smallmatrix} 9 & 29 \\ (10 & 0) \end{smallmatrix}$	Germany	Brilliant meteor	85	18	115	$53^{\circ} 256^{\circ} + 2^{\circ}$	5	See Heis's accounts in <i>Wochenschrift</i> , 1858.
44	8 (1888)	$\begin{smallmatrix} 17 & 24 \\ (18 & 30) \end{smallmatrix}$	Germany	Large	28	4	86	$90^{\circ} + 28^{\circ}$	3	June 9, 6 <sup>h</sup> 30 <sup>m</sup> A.M. in full sunshine. Detonating.
	(1841)	$\begin{smallmatrix} 8 & 13 \\ (8 & 22) \end{smallmatrix}$	France	$> 1$	115	87	468	$43^{\circ} 266^{\circ} - 16^{\circ}$	3	See Petit's account in <i>Comptes Rendus</i> , T. xiii.
46	9 (1866)	$\begin{smallmatrix} 3 & 32 \\ (4 & 56) \end{smallmatrix}$	Austria-Hungary	$\odot$	36	7	29	$170^{\circ} + 55^{\circ}$	4	The <i>Knyahinya Meteorite</i> . Detonating.
47	9 (1869)	$\begin{smallmatrix} 8 & 26 \\ (9 & 7) \end{smallmatrix}$	Germany	Large meteor	128	28	119	$27^{\circ} 250^{\circ} + 35^{\circ}$	7	See Heis's account in <i>Wochenschrift</i> , 1869.
48	11 (1867)	$\begin{smallmatrix} 8 & 8 \\ (8 & 11) \end{smallmatrix}$	France	Almost $\zeta$	71	41	93	$86^{\circ} + 44^{\circ}$	6	
49	14 (1877)	$\begin{smallmatrix} 8 & 43 \\ (8 & 52) \end{smallmatrix}$	Germany	Splendid	140	27	134	$34^{\circ} 215^{\circ} + 14^{\circ}$	3	See Gruy's investigations in <i>Comptes Rendus</i> , T. lxxv. Detonating.

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		<sup>h</sup> <sup>m</sup>					...	$\alpha$ $\delta$			
50	17 (1868)	8 18 (9 23)	Austria	$\frac{1}{4}$ ☾	...	32	...	109 +37	3	A rough determination.	
51	17 (1873)	7 38 (8 45)	Austria-Hungary	$\frac{1}{2}$ ☉	92	20	281	28	248.6-20.2	25	Detonating.
52	17 (1885)	8 47 (10 0)	Bosnia	☾	57	30	130	30	112 +42	6	
53	19 (1887)	9 23 (10 25)	Austria	Bright meteor	122	21	360	...	282 -19	4	
54	July 7 (1892)	8 2 (9 0)	South Europe	$\frac{1}{6}$ ☾	46	98	836	54	349 + 8	21	True course upwards.
55	8 (1856)	11 38 (6 0)	United States	Large meteor	34	7	37	...	157 +15	4	See Spillman's accounts in <i>Amer. Journ.</i> Vol. xxii. and xxiii. Detonating.
56	8 (1876)	14 31 (8 45)	United States	Large	88	34	150	...	303 + 6	...	See Kirkwood's investigations in <i>Proceed. of the Amer. Philosoph. Soc.</i> 1877. Detonating.
57	13 (1879)	7 30 (8 27)	Austria	$\frac{1}{3}$ ☾	60	19	119	25	246 -19	10	
58	16 (1871)	6 45 (7 34)	Germany	10 x ♀	23	22	48	...	294 -15	2	See Heis's accounts in <i>Wochenchr.</i> 1871. Detonating.
59	17 (1876)	7 28 (8 33)	Austria	♀	102	49	55	18	260 +45	3	

Ref. No.	Date of Appearance.	Time, G.M.T. and (Local Time).	Locality.	Apparent Size or Magnitude.	Height. When First Seen.	Real Length of Observed Path. English Miles.	Real Velocity to the Earth (Geo-centric).	Radiant Point.	Number of Observations Used.	Remarks, References, &c.
		<div>h m</div>					<div><math>\delta</math> <math>\alpha</math></div>			
60	20 (1860)	<div>14 43 (9 35)</div>	United States	Large meteor	126	42 1000 at least	12.5	<div><math>159^{\circ}</math> <math>+19^{\circ}</math></div>	6	See Lyman's account in <i>Americ. Journ.</i> Vol. xxx.
61	22 (1888)	<div>7 3 (7 55)</div>	Adria	Bright	...	21 ...	...	<div><math>227^{\circ}</math> <math>+21^{\circ}</math></div>	4	Observations incomplete, determinations only rough.
62	26 (1873)	<div>9 18 (10 23)</div>	Austria-Hungary	♀	50	46 23	...	<div><math>250^{\circ}</math> <math>-29^{\circ}</math></div>	2 (by Meteoroscopes)	
63	30 (1873)	<div>8 31 (9 12)</div>	Germany	> ♀	82	35 184	41	<div><math>317^{\circ}</math> <math>-11^{\circ}</math></div>	2	See Heis's accounts in <i>Wochenschr.</i> , 1873.
64	30 (1879)	<div>9 51 (10 42)</div>	Denmark	♀	107	46 83	...	<div><math>330^{\circ}</math> <math>+22.5^{\circ}</math></div>	2	See Kohl's accounts in Klein's <i>Wochenschrift</i> , 1879.
65	Aug. 2 (1860)	<div>15 41 (10 5)</div>	United States	Brilliant meteor	109	28 370	32.5	<div><math>317^{\circ}</math> <math>-23^{\circ}</math></div>	8	See Prof. Newton's accounts in <i>Amer. Journ.</i> Ser. II. Vol. xxxiii. Detonating.
66	4 (1858)	<div>9 9 (9 40)</div>	Germany	$\frac{1}{3}$ ♂	78	28 70	14	<div><math>208^{\circ}</math> <math>+51^{\circ}</math></div>	4	See accounts in Heis's <i>Wochenschr.</i> , 1858 and 1863. Detonating.
67	6 (1864)	<div>10 20 (10 51)</div>	Germany	> ♀	106	36 142	38	<div><math>305^{\circ}</math> <math>-8^{\circ}</math></div>	5	See Heis's accounts in <i>Wochenschr.</i> , 1867.
68	7 (1859)	<div>7 59 (8 30)</div>	Germany	Large meteor	138	27 110	24	<div><math>264^{\circ}</math> <math>+53^{\circ}</math></div>	2	See Heis's accounts in <i>Wochenschr.</i> , T. ii. Detonating.
69	10 (1858)	<div>8 32 (9 3)</div>	Germany	$\frac{2}{3}$ ♂	128	50 92	23	<div><math>215^{\circ}</math> <math>+55^{\circ}</math></div>	3	See Heis's accounts in <i>Astr. Nachr.</i> 1186.



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		h m				English Miles.	...	$\alpha$ $\delta$		
70	10 (1863)	8 55 (9 45)	Italy	♀	73	18	...	30 + 70	2	Not a Perseid.
71	12 (1880)	10 44 (11 34)	Norway and Denmark	♀	79	37	166	257.5 - 3	3	See Kohl's investigations in Klein's <i>Wochenschr.</i> , 1880.
72	17 (1859)	8 17 (8 53)	Germany	♂	83	21	119	335 + 17.0	5	See Heis's accounts in <i>Wochenschr.</i> T. iii. Detonating.
73	19 (1847)	9 14 (9 23)	France	2 × 4	108	22	266	253 - 16.5	2	See Petit's accounts in <i>Comptes Rendus.</i> T. xxv. and T. xxix.
74	19 (1867)	8 37 (9 18)	Germany	3 × 4	158	27	133	279 + 43	3	See Heis's accounts in <i>Wochenschr.</i> , 1867.
75	25 (1884)	8 23 (9 25)	Austria	Very splendid	45	32	69	10 + 5.5	2	
76	26 (1858)	18 45	Germany	♂	44	41	64	11 ± 0	2	See Heis's accounts in <i>Wochenschr.</i> T. ii. Rad. not accurate.
77	Sept. 5 (1868)	8 0 (8 0)	Servia to France	> 4	483	115	1770	13.9 - 2.0	12	One of the longest paths.
78	6 (1866)	6 50 (7 55)	Austria	♂	37	32	73	79 + 44	2	
79	8 (1869)	6 17 (7 22)	Austria, Italy	4 × 4	115	46	734	70 + 45	Many, but rough	

Ref. No.	Date of Appearance.	Time, G.M.T. and (Local Time).	Locality.	Apparent Size or Magnitude.	Height. When First Seen.	Real Length to the Observed Path. English Miles.	Velocity to the Earth (centric).	Radiant Point	Number of Observations Used.	Remarks, References, &c.
80	19 (1873)	<sup>h</sup> 10 38 ( <sup>m</sup> 9 10)	Germany	☾	69	23 106	21	208 + 50	2	See accounts in Heis's <i>Wochenschr.</i> , 1873.
81	27 (1870)	<sup>h</sup> 5 27 ( <sup>m</sup> 6 8)	Germany, Denmark	Large meteor	184	10 450	44	150 + 30	18	See a discussion of Dr. Matthiesen's account in <i>A.N.</i> , 1845 and 1846.
82	Oct. 12 (1856)	<sup>h</sup> 5 5 ( <sup>m</sup> 6 0)	Austria	Splendid meteor	73	18 110	...	224 + 25	3	
83	13 (1879)	<sup>h</sup> 5 0 ( <sup>m</sup> 5 51)	Italy	2 × 4	138	20 220	13	304.5 - 11	5	
84	23 (1805)	<sup>h</sup> 6 22 ( <sup>m</sup> 6 58)	Germany	2 × ♀	55	37 101	29	52 + 16.5	3	See accounts in <i>Gilbert's Annalen</i> . T. xxiii.
85	23 (1887)	<sup>h</sup> 3 19 ( <sup>m</sup> 4 20)	Austria	☾	136	20 322	30	224 - 8	10	Detonating.
86	23 (1889)	<sup>h</sup> 4 17 ( <sup>m</sup> 5 29)	Austria-Hungary	$\frac{1}{2}$ ☾	105	23 168	14	311.4 - 11.3	9	
87	29 (1857)	<sup>h</sup> 5 57 ( <sup>m</sup> 6 6)	France	Large meteor	83	37 179	23	231 + 6	2	See Petit's accounts in <i>Astr. Nach.</i> , 1180.
88	Nov. 1 (1857)	<sup>h</sup> 5 55 ( <sup>m</sup> 6 26)	Germany	$\frac{1}{2}$ ☾	157	13 161	...	294 + 42	2	
89	11 (1864)	<sup>h</sup> 5 35 ( <sup>m</sup> 6 8)	France, Germany	$\frac{1}{2}$ ☾	106	30 446	68	55 + 21	6	See accounts in Heis's <i>Wochenschr.</i> , 1864.
90	11 (1879)	<sup>h</sup> 4 44 ( <sup>m</sup> 5 34)	Austria	Splendid meteor	50	46 11	...	271 - 11	3	

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		$h$ $m$						$\alpha$ $\delta$		
91	13 (1873)	7 48 (8 30)	Germany	$\frac{1}{2}$ $\odot$	57	18	64	22	2	See Heis's accounts in <i>Wochenchr.</i> , 1873.
92	Dec. 4 (1885)	6 32 (7 34)	Austria	Brilliant meteor	48	34	110	18	2	
93	7 (1865)	7 40 (7 30)	France	$< \odot$	64	45	92	9	4	See Gruy's accounts in <i>Comptes Rendus</i> . T. lxii. Detonating.
94	7 (1868)	3 30 (4 8)	Germany	$\gamma$	56	41	165	14	3	See Heis's account in <i>Wochenchr.</i> , 1868.
95	13 (1888)	5 54 (6 52)	Austria, Germany	$\eta$	85	19	136	27	6	
96	17 (1857)	4 18 (4 54)	Germany	Large meteor	48	18	207	34	4	See accounts in Heis's <i>Wochenchr.</i> , 1858.
97	21 (1887)	3 51 (5 0)	Austro-Hungary	$\odot$	55	29	68	19	5	
98	24 (1850)	6 18 (6 27)	France	Large meteor	50	24	27	5	2	See Petit's account in <i>Comptes Rendus</i> . T. xlii. Detonating.
99	24 (1873)	12 47 (7 39)	United States	$\odot$	87	9	230	34	20	See account by Cleveland Abbe, Washington <i>Phil. Society's Transact.</i> , 1874. Detonating.
100	31 (1888)	7 40 (8 8)	France, Germany	$\eta$	74	46	336	...	3	See account in Klein's <i>Wochenchr.</i> , 1889.

Observations of Comet, 1896, I. (Perrine-Lamp), at the Radcliffe Observatory, Oxford.

(Communicated by E. J. Stone, Esq., M.A., F.R.S., Radcliffe Observer.)

The following comet observations (with the exception of March 4) were made with the 10-inch Barclay Equatorial, using the ring micrometer, with power 100. The observation on March 4 was made with the Heliometer, using the ring micrometer, with power 100.

Date.	G.M.T.			Local Sidereal Time.	Observer.	Comet minus Star (corrected for Refraction only).			No. of Comps.	Apparent R.A. Parallax of in R.A.			Log. (p × Δ).	Apparent N.P.D. Parallax of in N.P.D.			Log. (q × Δ).	Ref.
	h	m	s			R.A. m s	"	h		m	s	°		'	"	q.		
1896.																		
Feb.	23	16 46	12	14 55 28	R.	-1 13'41	-8 33'5	5	21 22 25'31	-1'11	9'6340	57 22 23'3	14'1	0'7377	(a)			
	23	16 49	58	14 59 14	R.	-1 49'20	-8 55'6	3	21 22 29'39	-1'11	9'6348	57 21 39'4	14'2	0'7416	(b)			
	23	17 53	31	16 2 57	R.	-2 18'60	-6 9'0	2	21 23 30'33	-1'11	9'6321	57 9 36'4	13'7	0'7259	(c)			
Mar.	3	9 19	19	8 2 50	R.	+1 11'40	+1 21'3	8	1 6 0'30	+1'07	9'7572	38 14 58'2	6'0	0'5077	(d)			
	4	8 26	21	7 13 40	R.	+1 23'49	-0 47'2	8	1 24 57'31	+1'05	9'7702	38 14 34'4	7'2	0'6089	(e)			
	14	9 31	33	8 58 29	R.	-1 49'11	+6 8'1	9	3 14 33'50	+0'59	9'7334	42 16 48'2	4'8	0'6396	(f)			
	16	10 4	39	9 39 33	R.	-1 15'09	+2 25'5	8	3 25 42'52	+0'54	9'7270	43 6 39'0	4'6	0'6509	(g)			
	19	8 5	44	7 57 11	W.	+1 25'57	...	10	3 38 49'13	+0'43	9'6756	...	...	...	(h)			
	19	8 5	44	7 57 11	W.	+1 20'70	-5 58'8	10	3 38 48'71	+0'43	9'6756	44 11 9	2'9	0'4942	(i)			
Apr.	9	9 58	36	11 8 6	R.	-3 34'04	-0 54'1	8	4 29 30'09	+0'26	9'6798	48 48 10'3	2'5	0'6617	(j)			
	10	9 10	31	10 32 51	R.	-0 51'33	-1 26'9	6	4 31 1'07	+0'26	9'6851	48 55 49'8	2'8	0'7140	(k)			

Observers' Remarks.

- (a), (b), (c) Coma is 2' in diameter. Nucleus diffused, mag. 9 or 10. The comet is visible in the 3-inch finder.
- (c) Very faint, strong twilight.
- (d) The comet's coma is, approximately, 3' in diameter. The nucleus (a large nebulous image, say 15'') is brighter than on February 23.
- (e) Condensation bright, but more nebulous than with Barclay last night.
- (f) Coma of comet 2' diameter; condensation seemed stellar at times, mag. 10. The comparison star is reddish. Sky hazy.
- (g) Coma 2' in diameter, with a nebulous condensation. Nucleus visible at times, mag. 11. Sky hazy at intervals.
- (h), (i) The comet is a round diffused mass, with a stellar brightening showing occasionally as a nucleus of about the 13th magnitude. A very small star was close to the comet's nucleus at about 8<sup>h</sup> 10<sup>m</sup> G.M.T. Moon near, but sky clear. Observing almost impracticable at times, noises.
- (j) There is no nucleus, but a sight condensation shows up at times. Diameter of coma 1'. A bright star, *e Persei*, in the field.
- (k) Observations rather difficult. Coma large, but feeble. A star, magnitude 12 or 13, follows within the condensation, which is only faintly visible. Wind slightly gusty, causing occasional small vibrations of the telescope.

Observers: W., Mr. W. Wickham; R., Mr. W. H. Robinson.